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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,258	11/19/2003	Robert Tornoe	EIMC-0019	8165

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EXAMINER

CANNING, ANTHONY J

ART UNIT PAPER NUMBER

2879

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/718,258

Applicant(s)

TORNOE ET AL.

Examiner

Anthony J. Canning

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/03; 6/04; 11/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities: claim 8 depends from claim 6, and both claims recite the same limitation. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 5, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Allering (U.S. 2,351,895).
4. As to claim 1, Allering discloses an electron tube, comprising: an electrically insulating wall portion (see Fig. 1, item 2; page 2, left hand column, lines 25-28); an electrode formed on an inside portion of said insulating wall portion, the electrode comprising a metallization layer formed on said inside portion of said insulating wall portion (see Fig. 1, item 13; page 2, left hand column, lines 25-31); and an electrical path coupling said electrode to a terminal on an exterior of the tube (see Fig. 1, items 23 and 31; page 2, right hand column, lines 71-75).
5. As to claim 3, Allering discloses an electron tube in accordance with claim 1, wherein said electrically insulating wall portion comprises a ceramic material (page 2, left hand column, lines 25-28).

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6. As to claim 5, Allerding discloses an electron tube in accordance with claim 3 wherein said tube further comprises a fluid cooling apparatus in thermal contact with an exterior of said tube (page 1, right hand column, lines 46-49, fluids flow).

7. As to claim 9, Allerding discloses an electron tube, comprising: a linear beam electron tube (see Fig. 1; page 1, left hand column, line 1), comprising: vacuum envelope means for maintaining a vacuum in the tube (page 1, right hand column, lines 41-43), said vacuum envelope means including an electrically insulating wall portion (page 1, right hand column, lines 41-43); means for conducting electricity disposed on an inside of said insulating wall portion (see Fig. 1, item 13; page 2, left hand column, lines 25-31); and terminal means disposed on an outside of said insulating wall portion and electrically coupled to said means for conducting electricity (see Fig. 1, items 23 and 31; page 2, right hand column, lines 71-75).

8. As to claim 10, Allerding discloses the electron tube of claim 9, wherein said means for conducting electricity comprises a layer of metallization (see Fig. 1, item 13; page 2, left hand column, lines 25-31).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 2, 4, 6, 8, and 11- 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allerding (U.S. 2,351,895) in view of Delroy et al. (U.S. 4,358,707).

11. As to claim 2, Allerding discloses an electron tube, comprising: an electrically insulating wall portion (see Fig. 1, item 2; page 2, left hand column, lines 25-28); an electrode formed on an inside portion of said insulating wall portion, the electrode comprising a metallization layer formed on said inside portion of said insulating wall portion (see Fig. 1, item 13; page 2, left hand column, lines 25-31); and an electrical path coupling said electrode to a terminal on an exterior of the tube (see Fig. 1, items 23 and 31; page 2, right hand column, lines 71-75). Allerding fails to disclose a cylindrical copper member including a plurality of circularly disposed fingers and slots, said fingers affixed at a distal end thereof to said metallization layer.

Delroy et al. discloses an electron tube with a cylindrical copper member including a plurality of circularly disposed fingers and slots, said fingers affixed at a distal end thereof to said metallization layer (see Fig. 1, item 1; see Fig. 2, items 30 and 31; column 2, lines 42-49; column 1, lines 58-68). Delroy et al. further discloses that the fingers and slots help compensate for the difference in thermal expansion between the ceramic insulator and the copper metallized layer (column 2, lines 22-25).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electron gun of Allering to include a cylindrical copper member including a plurality of circularly disposed fingers and slots, said fingers affixed at a distal end thereof to said metallization layer, as taught by Delroy et al., so that the fingers and slots help compensate for the difference in thermal expansion between the ceramic insulator and the copper metallized layer.

12. As to claim 4, Allering and Delroy et al. disclose an electron tube in accordance with claim 2. Allering further discloses that the electrically insulating wall portion comprises a ceramic material (page 2, left hand column, lines 25-28).

13. As to claim 6, Allering and Delroy et al. disclose an electron tube in accordance with claim 4. Allering further discloses that the tube further comprises a fluid cooling apparatus in thermal contact with an exterior of said tube (page 1, right hand column, lines 46-49, fluids flow).

14. As to claim 8, Allering and Delroy et al. disclose an electron tube in accordance with claim 6. Allering further discloses that tube further comprises a fluid cooling apparatus in thermal contact with an exterior of said tube (page 1, right hand column, lines 46-49, fluids flow).

15. As to claim 11, Allering discloses the electron tube of claim 9, wherein said means for conducting electricity comprises a cylindrical copper member (page 1, left hand column, lines 42-45). Allering fails to disclose that the cylindrical copper member has a plurality of circularly disposed fingers and slots.

Delroy et al. discloses an electron tube with a cylindrical copper member including a plurality of circularly disposed fingers and slots, said fingers affixed at a distal end thereof to said metallization layer (see Fig. 1, item 1; see Fig. 2, items 30 and 31; column 2, lines 42-49; column 1, lines 58-68). Delroy et al. further discloses that the fingers and slots help compensate for the difference in thermal expansion between the ceramic insulator and the copper metallized layer (column 2, lines 22-25).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electron gun of Allerding to include a cylindrical copper member including a plurality of circularly disposed fingers and slots, said fingers affixed at a distal end thereof to said metallization layer, as taught by Delroy et al., so that the fingers and slots help compensate for the difference in thermal expansion between the ceramic insulator and the copper metallized layer.

16. As to claim 12, Allerding and Delroy et al. disclose the electron tube of claim 11. Delroy et al. further discloses that the distal ends of said fingers are brazed to the insulating wall portion (column 1, lines 65-66; the distal ends are brazed to a copper tube that is brazed to the insulating wall). Brazing is a technique to connect two objects.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electron gun of Allerding to include a cylindrical copper member including a plurality of circularly disposed fingers and slots that are brazed to the insulating wall, as taught by Delroy et al., as a means of connecting the conducting layer to the insulating layer.

17. As to claim 13, Allerding discloses the electron tube of claim 10, wherein said means for conducting electricity comprises a cylindrical copper member (page 1, left hand column, lines 42-45). Allerding fails to disclose a plurality of circularly disposed fingers and slots and wherein distal ends of said fingers are brazed to said layer of metallization.

Delroy et al. discloses an electron tube with a cylindrical copper member including a plurality of circularly disposed fingers and slots, said fingers affixed via brazing at a distal end thereof to said metallization layer (see Fig. 1, item 1; see Fig. 2, items 30 and 31; column 2, lines 42-49; column 1, lines 58-68). Delroy et al. further discloses that the fingers and slots help compensate for the difference in thermal expansion between the ceramic insulator and the copper metallized layer (column 2, lines 22-25).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electron gun of Allerding to include a cylindrical copper member including a plurality of circularly disposed fingers and slots, said fingers affixed at a distal end thereof to said metallization layer, as taught by Delroy et al., so that the fingers and slots help compensate for the difference in thermal expansion between the ceramic insulator and the copper metallized layer.

18. As to claim 14, Allerding and Delroy et al. disclose the apparatus of claim 12. Allerding further discloses that the vacuum envelope means comprises a ceramic material (page 2, left hand column, lines 25-28).

19. As to claim 15, Allerding and Delroy et al. disclose the apparatus of claim 13. Allerding further discloses that the vacuum envelope means comprises a ceramic material (page 2, left hand column, lines 25-28).

20. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allerding (U.S. 2,351,895) in view of Wertman (U.S. 5,227,694).

21. As to claim 7, Allerding discloses an electron tube in accordance with claim 5. Allerding fails to disclose that the ceramic comprises a material selected from the group consisting of: aluminum oxide, beryllium oxide and aluminum nitride.

Wertman discloses an electron tube wherein the ceramic comprises a material selected from the group consisting of: aluminum oxide, beryllium oxide and aluminum nitride (column 3, lines 8-10). Ceramics made of these materials are light in weight, yet mechanically very stable.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electron gun of Allerding to include that the ceramic insulator is made from aluminum oxide, beryllium oxide or aluminum nitride, as taught by Wertman, to have a light weight, mechanically stable insulator.

Contact Information

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning 

1 September 2005


ASHOK PATEL
PRIMARY EXAMINER